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names. The volume is of moderate size and well printed, but the introduction of keys, especially in case of some of the larger genera, would have added somewhat to the usefulness of the work in the identification of species. Nevertheless, as a catalogue of the known species of the islands, it is a commendable contribution to taxonomic literature and will serve as an excellent basis for future studies on the flora of the region.—J. M. GREENMAN.

Natürlichen Pflanzenfamilien.⁴—Parts 236 and 237 contain a supplement to the Conjugatae and Chlorophyceae by the distinguished algologist Professor N. WILLE. Two new genera are included, namely *Pseudoprinzheimia* and *Pseudulvella* of the Chaetophoraceae; the former is based on *Ulvella confluens* Rosenv., an epiphyte growing on marine algae of the north Atlantic; the latter is based on *Ulvella americana* Snow, also an epiphyte, and occurs on freshwater algae of North America. Parts 238–240, likewise of recent issue, consist of a general index to Teil I of this great work.—J. M. GREENMAN.

NOTES FOR STUDENTS

The life history of Griffithsia.—LEWIS⁵ has published a paper on the life history of *Griffithsia Bornetiana*. The paper begins with the presentation of the vegetative characters of the three different individuals of this species: antheridial, procarpic, and tetrasporic. The author records comparative studies of the size of the cells in the three individuals, discusses the nature of intercellular connections, describes the division of chromatophores, and calls attention to the phenomenon of an approximate simultaneous occurrence of the nuclear divisions in multinucleate cells. There are then described the development of antheridia, cystocarps, and tetraspores; the methods of vegetative propagation; germination of spores; and tetraspore-like structures on sexual plants. The paper closes with a discussion of results, in which the author presents his views on alternation of generations in *Griffithsia*.

Some of the cytological results are as follows. The nuclei in *Griffithsia* are throughout their history very poor in linin. The chromatin of the resting nucleus, therefore, is not distributed on a linin reticulum, but is chiefly contained in a centrally placed, homogeneous nucleolus or "karyosome." As regards the mode of formation of chromosomes, the chromatin passes out of the nucleolus until the whole chromatin content is distributed through the nuclear cavity in the form of granules. These granules are much more numerous than the chromosomes, and probably by the fusion of separate granules chromosomes are formed. The number of chromosomes in the nucleus of vegetative cells in the tetrasporic plant

⁴ ENGLER UND PRANTL, Die natürlichen Pflanzenfamilien, etc. 236 and 237 Lieferung. Conjugatae und Chlorophyceae von N. WILLE. Nachträge zum I. Teil, 2 Abt., Bogen 1–6, pp. 96; 238 bis 240 Lieferung. Register zu Teil I (vollständig), pp. 242. Leipzig: Wilhelm Engelmann. 1909. *M* 3, *M* 4.50.

⁵ LEWIS, I. F., The life history of *Griffithsia Bornetiana*. *Annals of Botany* 23:639–690. pls. 49–53. 1909.